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IS LESS MORE IN FOOD SAFETY INFORMATION PROVISION?

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Cornhusker Economics

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Market Report	Year Ago	4 Wks Ago	10-6-17
Livestock and Products.			
Weekly Average			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight.....	102.00	105.00	109.50
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb.	143.00	161.84	201.88
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb.	141.27	159.89	167.78
Choice Boxed Beef, 600-750 lb. Carcass.....	184.72	192.35	197.39
Western Corn Belt Base Hog Price Carcass, Negotiated	47.08	57.25	54.51
Pork Carcass Cutout, 185 lb. Carcass 51-52% Lean.....	72.17	82.72	72.15
Slaughter Lambs, woolled and shorn, 135-165 lb. National.....	155.00	170.98	155.75
National Carcass Lamb Cutout FOB.....	354.49	405.52	398.02
Crops.			
Daily Spot Prices			
Wheat, No. 1, H.W. Imperial, bu.....	2.62	3.08	3.15
Corn, No. 2, Yellow Columbus , bu.....	*	3.15	3.06
Soybeans, No. 1, Yellow Columbus , bu.....	*	8.78	8.82
Grain Sorghum, No.2, Yellow Dorchester, cwt.....	4.55	5.31	5.45
Oats, No. 2, Heavy Minneapolis, Mn, bu.....	2.62	2.80	2.92
Feed			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton.....	160.00	*	*
Alfalfa, Large Rounds, Good Platte Valley, ton.....	68.75	92.50	85.00
Grass Hay, Large Rounds, Good Nebraska, ton.....	70.00	90.00	87.50
Dried Distillers Grains, 10% Moisture Nebraska Average.....	113.25	116.00	115.50
Wet Distillers Grains, 65-70% Moisture Nebraska Average.....	40.50	40.00	42.50
* No Market			

The development of several niche food markets has been enabled by labels highlighting the existence of desirable or the absence of undesirable food attributes and/or production technologies, effectively targeting consumers willing to pay for this type of information. Examples include the “All Natural,” “No growth promoting antibiotic,” “No GMOs,” and “Cage-free” food labels. In what could be viewed as an extreme example of labeling what is absent, consumers can now purchase gluten-free water (McFadden 2017). This type of ‘redundant’ labeling seeks to exploit uninformed consumers.

In contrast, labeling what is present can be more challenging. This is especially true for foods produced with unique food safety enhancing processes. How can such technologies be effectively communicated on food labels, and how much information should be provided on a label to substantiate food safety claims when, despite consumer expectation of and demand for safer food, consumers may be apprehensive and/or uninformed about these technologies?

A University of Nebraska-Lincoln Department of Agricultural Economics study sought to answer the above questions by focusing on a new food safety technology, cattle vaccines against *E. coli* O157:H7. While these vaccines have been shown to be effective in reducing the incidence of the bacteria in cattle by 80% (Hurd and Mal-ladi 2012), and can potentially decrease human cases of *E. coli* infections by 85% (Matthews et

al. 2013), they have received only limited adoption by beef producers (Tonsor and Schroeder 2015). Given that the technology is costly, its adoption depends, to a large extent, on consumer willingness to pay for beef products from cattle treated with vaccines which requires that these products are effectively differentiated in the retail market. What information should be provided on food labels to substantiate food safety claims in the case of cattle vaccines against *E. coli*? The challenge is that the word “vaccine” on a food label may elicit mixed reactions among consumers, from concerns about drug resistance in animals to the skepticism surrounding the long-term effect of vaccinations held by some. In addition, having the name of a bacteria such as “*E. coli*” on a beef label, may be subject to diverse interpretations.

To address these issues, the study developed a survey to collect information on consumer preferences for different food safety labeling cues and willingness to pay for such labels. Shoppers at five different grocery stores in Lincoln, Nebraska were recruited to participate in the survey between December 2016 and January 2017, yielding a total of 445 participants who were also beef consumers. The main part of the survey involved asking participants to choose between ground beef with the standard label (i.e., found on a typical ground beef product) and one that in addition to the standard label had a second label with food safety information. Three versions of the food safety labels were designed. The first showed the phrase *Safer Choice* in a circle with a sentence below indicating that the product is “from cattle raised under strict health standards to ENHANCE beef safety”. In this version, no evidence is provided to support the food safety claim (*Safer Choice/Enhance* hereafter). The second food safety label showed the same *Safer Choice* phrase with a sentence below that provided information about the technology used, describing the product as originating “from cattle VACCINATED against *E. coli* to reduce the risk of illness” (*Safer Choice/Vaccinated* hereafter). The third label showed the word *E. coli* encircled in red with a diagonal strikethrough to buttress the safety of the beef product from *E. coli* bacteria, with a sentence below identical to the second food safety label (*E. coli/Vaccinated* hereafter). The label design for the third label was intended to mimic other “*free of*” labels such as “No Growth Promoting Antibiotics” and “No Hormones,” without explicitly claim-

ing, however, that the product is entirely free of *E. coli* bacteria. Each of the designed food safety labels was displayed to the left of the standard label on the ground beef product. The survey was designed such that participants were randomly assigned to one of the three food safety labeling options. Thus, each participant saw only one (of the three) food safety labels and had to choose between two options: ground beef with the standard label (option A), and ground beef with the standard plus a food safety label (option B). Participants who chose option B answered follow-up questions about their willingness to pay (WTP) a price premium for this option. On the other hand, participants who opted for option A (i.e., the ground beef with only the standard label) subsequently answered whether they would be willing to purchase option B at a discount. Those who were not willing to purchase option B at a discount were requested to provide a reason for their choice.

Survey results show that approximately two thirds of participants who received the food safety label displayed with the safer choice phrase and subsequent description without the words “vaccinated” or “*E. coli*” (*Safer Choice/Enhance*) opted for it. Similarly, nearly 60% of participants in the *Safer Choice/Vaccinated* group chose this option. In contrast, the label that showed *E. coli* in a red circle with the same information as the second (*E. coli/Vaccinated*) was the least preferred, with slightly less than half of those in that group choosing it. Empirical results show that beef consumers in the study were willing to pay an estimated average price premium of \$1.63 for ground beef with an additional food safety label. However, WTP premiums among the three food safety labels for participants who chose option B differed. The highest average price premium was \$1.77, recorded for the ground beef with the unsubstantiated food safety claim (*Safer Choice/Enhance*). Participants exposed to the *Safer Choice/Vaccinated* food safety label were willing to pay an average of \$1.62 more for this option. Notably, participants in the third group who saw the *E. coli/Vaccinated* food safety label were willing to pay \$1.44 as price premium for a pound of ground beef with this label, approximately 19% lower than the price premium for the *Safer Choice/Enhance* version, a difference that is statistically significant.

It is important to note that approximately a quarter of respondents chose the ground beef with the standard label which underscores the challenge in labeling food safety attributes. Among these participants, the majority indicated a willingness to purchase the ground beef with a food safety label at a discount, if that was their only choice. Reasons given by respondents who were completely opposed to ground beef with a food safety label, and would not purchase it even at a discount, echoed their aversion to vaccinations for a variety of reasons. These remarks exposed their doubts about the food safety labels, and insufficient knowledge of vaccines.

Overall, research findings show that labels that make positive but unsubstantiated claims of food safety could command higher premiums, compared to labels providing information to substantiate food safety claims. Results also suggest a potential market for beef products with additional food safety attributes, and a consumer segment willing to pay more for such products. Appealing to this segment will nevertheless require a tactful framing of information on such food labels; one that simultaneously alleviates consumers' concerns and signals the enhanced safety of the product.

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